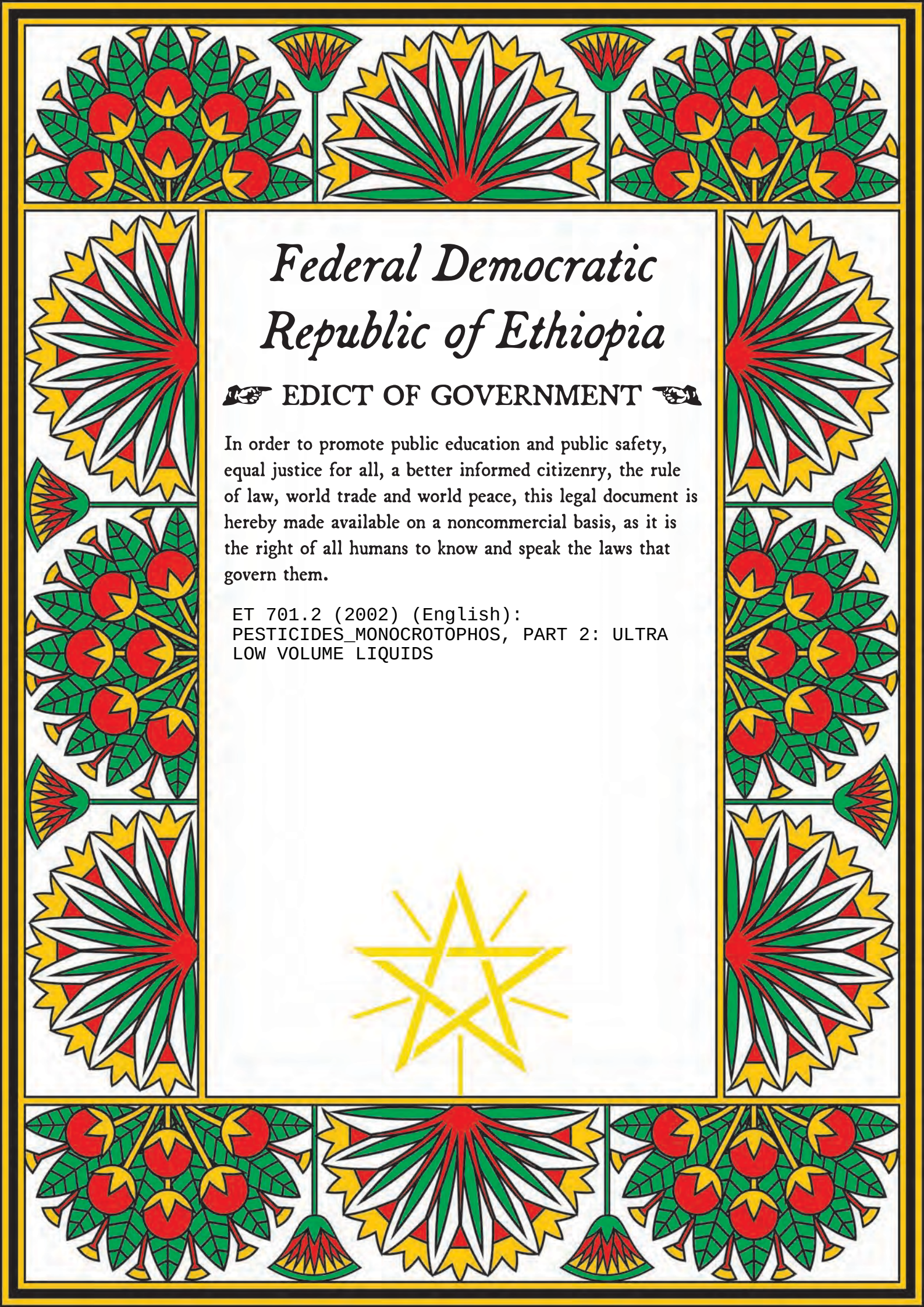




Federal Democratic Republic of Ethiopia

👉 EDICT OF GOVERNMENT 👈

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ET 701.2 (2002) (English):
PESTICIDES_MONOCROTOPHOS, PART 2: ULTRA
LOW VOLUME LIQUIDS



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**Pesticides Monocrotophos
Part 2:
Ultra low volume liquids (ULV)
Specification**

ICS: 65.100.01

Published by Ethiopian Standards Agency

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Pesticides (TC 19) and published by the Ethiopian Standards Agency (ESA).

The standard is a reaffirmation for reprint of the Ethiopian Standard ES 701-2:2002 Pesticides monocrotophos part 2 ultra low volume liquids specification, with some editorial changes without altering the technical contents in the former text.

Pesticides — Monocrotophos

Part 2: Ultra low volume liquids(ULV) — Specification

1 Scope

This Ethiopian Standard specifies requirements for monocrotophos ultra low volume liquids (for plant protection purpose).

2 Normative references

The following Ethiopian Standards contain provisions which, through reference in this text, constitute the provisions of this Ethiopian Standard. At the time of publication the editions indicated were valid. All standards are subject to revision and parties to agreements based on this Ethiopian Standard are encouraged to investigate the possibility of applying the most recent editions of the Ethiopian Standards indicated below. Registers of currently valid standards are maintained in the Ethiopian Standards Agency.

ES 693, *Pesticides - Terminology.*

ES 694, *Pesticides - Methods of sampling.*

ES 695, *Pesticides - Packaging.*

ES 696, *Pesticides - Guideline on good labelling practice.*

ES 697, *Pesticides - Guidelines for retail distribution, storage and handling.*

ES 700, *Pesticides – Guideline of the disposal of bulk quantities of obsolete pesticides.*

ES 701- 1, *Pesticides - Monocrotophos-part 1:Technical material (TC) - Specification.*

ES 748, *Petroleum products – Determination of viscosity.*

ES 749, *Pesticides – Determination of water content.*

ES 750, *Pesticides – Determination free acidity or alkalinity.*

ES 752, *Pesticides – Determination of stability of liquid formulations at 0 °C.*

ES 753, *Pesticides – Determination of accelerated storage stability.*

ES 760, *Petroleum products and other liquids – Determination of flash point.*

ES 772, *Pesticides – Determination of Monocrotophos content.*

WD¹⁾, *Pesticides – Determination of trimethyl phosphate content in monocrotophos.*

WD²⁾, *Pesticides -Determination of volatility in monocrotophos.*

¹⁾, ²⁾, under preparation

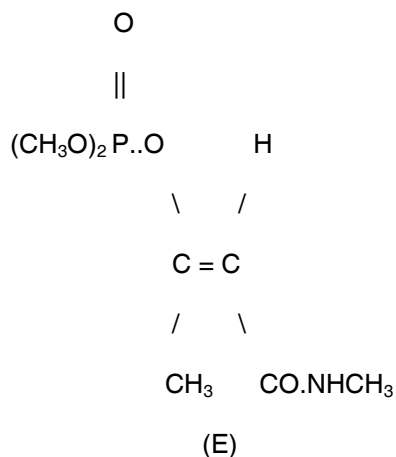
3 Definitions

For the purpose of this Ethiopian Standard terms defined in ES 693 shall apply.

4 General information

COMMON NAME: MONOCROTOPHOS (ISO)

STRUCTURAL FORMULA:



EMPIRICAL FORMULA: $\text{C}_7\text{H}_{14}\text{NO}_5\text{P}$

RMM:223.2

CAS REGISTRY NUMBER:6923-22-4

CIPAC CODE NUMBER:287

CHEMICAL NAME:

Dimethyl (E)-1-methyl-2-(methyl-carbamoyl) vinyl phosphate (IUPAC)

(E)-dimethyl 1-methyl-3-(methylamino)-3-oxo-1-propenyl phosphate (CA)

CHEMICAL GROUP: Organophosphate

USE CATEGORG: Insecticide

WHO CLASS¹⁾

5 Requirements

5.1 Description

The material shall consist of a solution of Monocrotophos technical complying with the requirements of ES 701-1 together with any solvents and other necessary formulants. It shall be in the form of a stable liquid free from visible suspended matter and sediment.

¹⁾ Based on the technical material

5.2 Active ingredient

5.2.1 Identity test

Where the identity of the active ingredient is in doubt, it shall be determined in accordance with ES 772 and the isolated active ingredient shall comply with at least one additional test.

5.2.2 Monocrotophos

The Monocrotophos content shall be declared in g/l at 20°C or g/kg and when determined in accordance with ES 772 the content obtained shall not differ from that declared content by more than $\pm 10\%$ of the declared content .

NOTE 1 - If the buyer requires both g/l at 20°C and g/kg, then in case of dispute, the analytical results shall be calculated as g/kg.

NOTE 2 - To minimize any degradation, monocrotophos ultra low volume liquids should be stored out of direct sunlight and under cool and dry conditions.

5.3 Impurities

5.3.1 Trimethyl phosphate

When determined in accordance with WD¹⁾ the maximum content of trimethyl phosphate shall be $0.036 \times \underline{x}$ g/kg, where $\underline{x}$ is the Monocrotophos content (g/kg) found under clause 5.2.2 .

NOTE 3 - On a monocrotophos content of 400 g/kg, the maximum permitted trimethyl phosphate content would be $0.036 \times 400 = 14.4$ g/kg in the material.

5.3.2 Water

When determined in accordance with clause 4.1 of ES 749 the maximum water content shall be 2.5 g/kg.

NOTE 4 - Ketones will interfere with method ES 749 Karl Fischer method and when they are present an amended version of the method should be used.*

5.4 Physical properties

5.4.1 Acidity

When determined in accordance with clause 6.1.3 of ES 750, the maximum acidity content shall be 25g/kg, calculated as H₂SO₄.

5.4.2 Flash point

'When determined in accordance with ES 760 the flash point of the product shall not be lower than 22.8°C (a closed cup method shall be also used).

NOTE 5 - Attention is drawn to the appropriate national and international regulations on handling and transport of flammable materials.

5.4.3 Kinematics viscosity range

When required, it shall be determined in accordance with ES 748 and the kinematic viscosity range of the product at 20°C shall be declared.

5.4.4 Volatility

'When required it shall be determined in accordance with WD²⁾ and the volatility (evaporation rate of the product shall be declared.

5.5 Storage stability

5.5.1 Stability at 0°C

After storage at $(0 \pm 1)^\circ\text{C}$ for 7 days, it shall be determined in accordance with ES 752 and the volume of solid and/or liquid which separates shall be not more than 0.3 ml.

5.5.2 Storage at 54°C

After storage at $(54 \pm 2)^\circ\text{C}$ for 14 days in a closed container, It shall be tested in accordance with ES 753 and the product shall continue to comply with clauses 5.2.2 (except that the minimum permitted Monocrotophos content shall be 85% of that found under clause 5.2.2), 5.3.1 and 5.4.1.

6 Handling

Pesticides shall be handled in accordance with ES 697.

7 Sampling

Samples shall be taken in accordance with ES 694.

8 Packaging

Pesticides shall be packed in accordance with ES 695.

9 Labelling

Pesticides labelling shall be in accordance with ES 696.

10 Disposal

Disposal of bulk quantities of obsolete pesticides shall be in accordance with ES 700.

11 Marking

Packages manufactured with the requirements of this Ethiopian Standard shall bear the Quality Mark upon approval by the responsible Authority.



Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010. ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1970.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check whether goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.

Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

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International Involvement

ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the international Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM). It is a founding member of the African Regional Organization for standardization (ARSO).

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Standard Mark